Claims

1. Piezoactuator (1) comprising
- at least one stacked piezoelement (2), with at least two electrode layers (7, 8, 9), arranged one over the other along a stacking direction (10) of the piezoelement (2), and at least one piezoelectric layer (4), arranged between two electrode layers (7, 8, 9), and
- at least one pretensioning device (15) for introduction of force (32) into a volume of the piezoelectric layer (4) by means of at least one force introduction surface (13, 14, 23, 24) on the piezoelectric layer (4), which is arranged on at least one of the surface sections (11, 12) of the piezoelectric layer (4) so that it faces the pretensioning device (15),

**characterized in that**
- the force introduction surface (13, 14, 23, 24) is smaller than the surface section (11, 12) of the piezoelectric layer (4) and that the volume is a partial volume (5) of the piezoelectric layer (4).

2. Piezoactuator according to Claim 1, in which a plurality of force introduction surfaces (13, 14) are distributed over the piezoelectric layer (4) in such a way that the introduction of force causes a bending of the piezoelectric layer (4).

3. Piezoactuator according to Claim 1 or 2, in which the piezoelectric layer (4) comprises a surface section (11) having at least one force introduction surface (13), and a further surface section (12) facing away from the surface section (11) and having at least one further force introduction surface (14), and in which the force introduction surfaces (13, 14) are laterally offset from one another relative to the stacking direction (10) of the piezoelement (2).

4. Piezoactuator according to one of Claims 1 to 3,

in which at least one of the designs chosen for the pretensioning device (15) and/or piezoelement (2) for generating the force introduction surface (13, 14, 23, 24) takes the form of a spherical cup (18), frustum of a cone (19, 29), cuboid (30, 31), ring (17) and/or cylinder (21, 22).

5. Piezoactuator according to one of Claims 1 to 4, in which the force introduction surface (23) is pointlike.

6. Piezoactuator according to one of Claims 1 to 4, in which the force introduction surface (24, 24') is stripe-shaped.

7. Piezoactuator according to one of Claims 1 to 4, in which the force introduction surface (23') is ring-shaped.

8. Piezoactuator according to one of Claims 1 to 7, in which there are at least three force introduction surfaces, evenly distributed over the surface section (11, 12) of the piezoelectric layer (4).

9. Piezoactuator according to Claims 1 or 8, in which there are at least three force introduction surfaces, arranged in a row (25) on the surface section (11, 12) of the piezoelectric layer (4).

10. Piezoactuator according to one of Claims 1 to 9, in which surface sections (11, 12) of the piezoelectric layer (4) which face away from one another have identical and/or differently shaped force introduction surfaces (13, 14, 23, 24) arranged along the stacking direction (10) and offset from one another.

11. Piezoactuator according to one of the Claims 1 to 10, in which a thickness (6) selected for the piezoelectric layer (4) is in the range 20 µm to 200 µm inclusive.

12. Piezoactuator according to Claim 11, in which an extent of the force introduction surface (13, 14,

23, 24) virtually corresponds to the thickness (6) of the piezoelectric layer (4).

13. Piezoactuator according to one of Claims 1 to 12, in which a plurality of piezoelements (2) are stacked one over the other.

14. Piezoactuator according to Claim 13, in which at least two piezoelements (2) are stacked over one another in such a way that force introduction surfaces (13, 14, 23, 24) of the piezoelements (2) are arranged more or less flush one over the other.

15. Method for producing a piezoactuator (2) according to one of Claims 1 to 14 by introducing a force (32) into a partial volume (5) of the piezoelectric layer (4) via the force introduction surface (13, 14, 23, 24) of the piezoelectric layer (4) in such a way that, in the partial volume (5) of the piezoelectric layer, a polarization (27) is generated transverse to the stacking direction (10).

16. Method according to Claim 15, in which a partial volume (5) extending along an entire thickness (6) of the piezoelectric layer (4) is used.

17. Method according to Claim 15 or 16, in which virtually complete polarization transverse to the stacking direction (10) is generated in the partial volume (5).